

### ABSTRACT

A photogrammetric apparatus for capturing a single image of an object, capturing a plurality of data about the image, analyzing the data, and computing relationships between substantially coplanar points in the image. The apparatus includes an image capturing device that captures images and stores the images in a storage device with database. The database simultaneously receives and stores data from a bearing finding device, a range finding device, and an azimuth finding device. The apparatus may include a global positioning system (GPS) device to collect and store to the database a geophysical location of the image capturing device when the image was captured. The apparatus includes an image processor to analyze the images and data stored in the database. The image processor includes routines for calibrating the apparatus, measuring distances between substantially coplanar points in the image, and calculating a plurality of relationships among various coplanar points in the image.